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DETERMINATION OF ANTIOXIDANT ACTIVITY AND TOTAL PHENOLIC CONTENT OF *Sansevieria roxburghiana* (INDIAN BOWSTRING HEMP)

By

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AUTHOR'S DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

Many plants have discover their antioxidant potential through several tests such as antioxidant activity, total phenolic compound, and phytochemical screening. *Sansevieria roxburghiana* is include in the plant that has been antioxidant potential. The objective of this study is to determine the antioxidant activity and total phenolic content of *Sansevieria roxburghiana* leaves. Leaves of sample was extract using methanolic extract. Antioxidant activity was determined by using DPPH assay, while total phenolic content was measured by using Folin Ciocalteau assay. Data analysis was carried out using one-way ANOVA and Pearson's correlation. Then, antioxidant activity was correlated with total phenolic content. The result shows that *Sansevieria roxburghiana* leaves has high antioxidant activity and total phenolic content. There is significant result ($p < 0.05$) for comparison of antioxidant activity between *Sansevieria roxburghiana* leaves and L-ascorbic acid. The correlation result also shows significant ($p < 0.05$) and positive good correlation which with r value is 0.916. From this result, it shows that high phenolic compounds of *Sansevieria roxburghiana* leaves give high antioxidant activity. As conclusion, *Sansevieria roxburghiana* leaves shows high potential antioxidant from methanolic extract. As conclusion, *Sansevieria roxburghiana* leaves has high antioxidant potential from methanolic extract. Further studies can continue the determination of antioxidant activity by using several antioxidant assays such as FRAP, ORAC, and ABTS.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Many plants are rich sources of natural products which belong to different classes of biologically active chemicals. Most of these compounds are used as medicine for many diseases. Antioxidants have radical scavenging properties which provide protection to human body against free radicals by inhibiting various oxidizing chain reactions (Rauf *et al.*, 2012). There are two types of antioxidants, synthetic antioxidants that are synthesized through chemical processes and natural antioxidants that are naturally produced by human body or plants and are normally regarded as safe. Examples of antioxidants are flavonoids, carotenoids, ascorbic acids, amino acids, and hydroxylcarboxylic acids (Asna & Noriham, 2014). In plants, the term antioxidant often refers to a wide range of phenolic compounds that vary from simple phenolic acids to highly polymerized compounds (Chanda *et al.*, 2011).

Sansevieria roxburghiana (S.roxburghiana) is known as 'Lidah Jin' in Malay and Indian bowstring hemp in English. In India, this plant is very popular and is referred to by many names are used such as *Marul* in Tamil, *Murva* in Sankrit and Hindi, Hatukapel in Malayalam, Heggurutike in Kannada, and Murhari in Marathi (Aravindh, n.d.). This plant is largely unknown by the public in Malaysia. Some people may confuse this plant with *Aleo vera* which is known as 'Lidah Buaya' in Malay. *S.roxburghiana* is a herbaceous perennial plant with short fleshly stem and stout rootstock, occurring in the Eastern coastal region of India, Sri Lanka, Indonesia, and tropical Africa (Sethi, 2013). Further, it is cultivated and exclusively used in China and India for medicinal purpose (Kingsley *et al.*, 2013).

The whole part of the plants have been reported to be utilized for medical purposes (Arulselvan *et al.,* 2014). Its roots and leaves are also pharmacologically used by in